NEWSLINE

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Reading signals of climate change

By Anne M. Stark
NEWSLINE STAFF WRITER

Access to the next generation of climate change experiments has helped scientists obtain more comprehensive estimates of the expected "signal" of human influences on climate.

Improved knowledge of this signal, and a better understanding of uncertainties in temperature observations, have helped to advance "detection and attribution" ("D&A") studies, which assist in unraveling the causes of recent climate change.

Ben Santer

"The climate system is telling us an internally consistent story," said Ben Santer, an atmospheric scientist from the Laboratory. "We've observed warming of the Earth's land surface and oceans, cooling of the stratosphere, an increase in height of the tropopause, retreat of Arctic sea ice, and widespread melting of glaciers. These changes are difficult to reconcile with purely natural causes."

Santer will report today on the identification of human influences on recent atmospheric temperature changes. His presentation will take place during a climate change session at the American Association for the Advancement of Science annual meeting in Washington D.C. The title of the panel is "Detection and Attribution - Methods and Results - of Climate Trends in Temperature Sensors, Species and Glaciers."

Santer works in Livermore's Program for Climate Model Diagnosis and Intercomparison (PCMDI), and has compared new computer model simulations performed at several different research institutes to observational records of recent temperature change.

The climate models analyzed by Santer and colleagues included changes in both manmade forcings (well-mixed greenhouse gases, tropospheric and stratospheric ozone, and the scattering effects of sulfate aerosols) and natural external forcings (solar irradiance and volcanic aerosols).

Earlier Livermore research has deter-

See **SANTER,** *page 8*

Good Samaritans' first aid fails to resuscitate NIF employee Warren Webb

By Bob Hirschfeld
NEWSLINE STAFF WRITER

Funeral services and an Irish wake are scheduled today for Warren Webb, who died last week in front of the Central Café, despite resuscitation efforts by co-workers and LLNL emergency responders.

Webb, who worked as a supplemental labor employee, was assigned to the NIF Desktop Support Group, providing technical assistance to PC and Mac users. He began his assignment at the Lab in 1997.

As was his regular routine, Webb headed toward the café with a friend to buy his lunch, and bring it back to their office. But just before noon, he collapsed near the bicycle corral outside the building, telling his companion to call for help. A passer-by, Carrie Wilson, offered her assistance in comforting Webb.

By chance, at that moment, a Protective Force Division patrol unit happened to be driving through the parking lot. Officer Paul Talosig radioed his dispatcher, and within moments, a Lab ambulance was on its way. Talosig, a former member of the National Guard and trained as an Army combat lifesaver, checked Webb's pulse.

In the meantime, a crowd was gathering, including Dianne Buckhout, an Air Force reservist who served in Iraq as a medic. After identifying herself, she began performing

See **WEBB,** *page 3*

NAI Associate Director Cochran announces he will retire in June after 30-year Laboratory career

Sometime in June, one of the early leaders of the Laboratory's Nonproliferation, Arms Control and International Security (NAI) directorate and counterterrorism efforts will retire.

Steve Cochran, acting associate director for NAI and acting director of the Lab's Homeland Security Organization since October, has told Director Michael Anastasio that he plans to leave LLNL in June. Cochran informed NAI's senior staff of his decision last week.

"I've worked with great people at the Laboratory; there's been a willingness to take risks and a willingness to push people to accomplish their best," Cochran said this week.

More details on Cochran's distinguished career and retirement will appear in a future edition of *Newsline.*

Simulation advances fusion experiment

By Jon Bashor
NERSC

To better understand what is happening inside fusion plasma, Laboratory scientists in conjunction with researchers from the University of Wisconsin-Madison are using the National Energy Research Scientific Computing Center to create detailed simulations of fusion plasmas.

The project will help scientists working on Livermore's Sustained Spheromak Physics Experiment (SSPX).

In pursuing the potential of

See **SPHEROMAK,** *page 7*

Technician Richard Kemptner adjusts the high voltage lines that initiate the plasma in the vacuum vessel of the spheromak.

Animator brings science to life

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The significance of Black History Month

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Keeping California beautiful

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LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Wednesday 23

The Integrated Computing & Communications Department is sponsoring a **"Dell Equipment Demo"** by Dell Inc. and GMRI today in the Central Cafe from 2 to 4 p.m. Come meet with the technical teams to discuss your initiatives and technical issues. They will be introducing the newly released Dell laptop, desktop and workstation products: Latitude D800, Optiplex GX280, Workstation 670, 2005FP Monitor. Refreshments will be served. Contact: Mary Ann Chapeta, 4-4103.

Up & Coming

The **Retirees' Chemistry Group,** also known as the ACS (Aging Chemists' Society) will have a no-host Chinese buffet luncheon on Thursday, March 3, at 11:30 a.m. at the Willow Tree Restaurant, 6513 Regional Street, Dublin. Cost for the buffet is $12, payable at the door. Spouses and friends are welcomed. RSVP by Feb. 28 with the number in your party to Bob or Anna Lim, (925) 447-3036 or e-mail: annalim8@yahoo.com. Bring your scrapbooks, pictures and memories.

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The **University Education Partnership Program** is seeking proposals from Universities for Ph.D. student dissertation studies that are aligned with the mission needs of LLNL. The mission needs fall within Tera-Scale Computations, Laser Science and Applications, Physical Bioscience, Accelerator Mass Spectrometry and Geophysics, Planetary Physics and Astrophysics. The students will spend 12 weeks at the Lab working on their dissertation in collaboration with a Lab scientist. The proposal deadline is March 4. For more information, go to the Request for Proposal Web page at http://rfp-b541046.llnl.gov/.

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Livermore Valley Joint Unified School District (LVJUSD) is seeking judges for the **"Science Odyssey"** science fair geared for students in grades K-12, on March 8 from 6:30-8:30 p.m. at Junction Avenue Middle School. Judges should arrive at 4 p.m. and stay at least until 6:30 p.m. Judges will be given a brief orientation and specific guidelines for questioning students, as well as scoring rubrics. T-shirts and a hot dog dinner will be provided. If you are interested in volunteering, contact Frankie Tate at 606-4800 or ftate@livermore. k12.ca.us.

• • •

Red Wing has expanded its shoemobile service to include Site 300 as well as the Livermore Site. Site 300 now has shoemobile service three times per month provided by Quenvold's, Iron Age and Red Wing Shoes. Check the Site 300 shoemobile schedule at http://www-r.llnl.gov/es_and_h/safetyshoes/safetyshoesch05_s300.htm for dates.

Shoemobile service remains the same at the Livermore site with four companies providing service. Check out the safety shoe Web page at http://www-r.llnl.gov/es_and_h/safetyshoes/index.htm

Celebration central to café

BOB HIRSCHFELD/NEWSLINE

Amid celebratory balloons, chef Bernadette Guyton, who has been at LLNL for three years, serves up lunch to Dayna Navarro on the first anniversary of the Lab's Central Café.

MMED offers tours of capabilities

The Manufacturing and Materials Engineering Division (MMED) in Engineering will conduct a series of tours of its fabrication and testing facilities for interested employees. Each tour will last approximately 2 1/2 hours. The goals are to:

- Inform people about the breadth of manufacturing, fabrication, and materials test capabilities in MMED.
- Give people a chance to meet some of the points of contact.
- Provide background on when to use MMED services.

MMED serves Laboratory programs by providing three basic capabilities: Fabrication and assembly of components; nondestructive and destructive characterization of materials; and the design and construction of some of the world's most precise machines.

Tours will be offered every other month for as long as there is interest. If you are interested in participating, call Diane Martz at 3-1981, or email martz3@llnl.gov to reserve a spot. Be sure to indicate if any employees without a Q clearance will be attending so escorts can be arranged. Each tour will be limited to 20 people.

IN MEMORIAM

Homer Clyde Weed

Retired Lab physical chemist and geoscientist Homer Clyde Weed died Feb. 12. He was 84.

A 48-year resident of Livermore, Weed came to Livermore to work at the Lab in 1957, and retired in 1991. In the 1980s and 1990s, Weed made numerous contributions for the Yucca Mountain Project. As a retiree, he continued to provide technical support to the Energy and Environment Directorate for its geosciences programs until very recently.

Weed was born in March 1920 in Sun City, Kan., and moved to Bisbee, Ariz. when he was young. He graduated with a bachelor's degree in chemistry at the University of Arizona, Tucson, where he lettered in track and was Phi Beta Kappa. A highlight of his undergrad experience was a track meet during which he raced against Jackie Robinson.

Following graduation, Weed worked for Eastman Kodak in Knoxville, Tenn. He attended graduate school at Ohio State University and received his Ph. D. in physical chemistry. He was a long standing member of the scientific fraternity Gamma Alpha.

In Livermore, Weed was active in local elections. He bicycled to work for more than 30 years and was an avid tennis player. He loved music, classical literature, and could quote poetry at length. All who knew him characterized him as having an unassuming nature and dry sense of humor.

He is survived by his wife of 47 years, Emily, his nephew James Weed of San Diego, his niece Elizabeth Betanzos of San Diego, and their children.

A "Celebration of Life" will be held at Unitarian Universalist Church in Livermore Saturday (Feb. 19) at 1:30 p.m. The family requests that in lieu of flowers, contributions be made to a favorite charity.

Newsline

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Year of physics DDLS explores origins of the universe

Edward L. Wright, professor of physics and astronomy at UCLA, will deliver a Director's Distinguished Lecturer Series presentation entitled "Observing the Origin of the Universe" at 3:30 p.m. Thursday, March 3, in the Bldg. 123 auditorium.

The cosmic microwave background radiation left over from the Big Bang is an almost perfect black body with a temperature only a few degrees above absolute zero. NASA's Cosmic Background Explorer (COBE) satellite, launched in 1989, discovered tiny fluctuations (several parts per million) in the temperature of this radiation in different parts of the sky. These temperature differences trace out the density and gravitational potential perturbations created during the first trillionth of a second of the existence of the universe.

The tiny fluctuations have grown to become the galaxies and clusters of galaxies we see in the universe today. Launched in 2001, the Wilkinson Microwave Anisotropy Probe (WMAP), NASA's follow-on to COBE, gives a much sharper picture of these fluctuations and provides detailed information about the early evolution and current state of the universe.

Wright was a junior fellow at Harvard, where he received his Ph.D. in astronomy, and then became an associate professor at MIT prior to joining the UCLA faculty in 1981. His work on COBE earned him NASA's Exceptional Scientific Achievement Medal in 1992. He is now a working on WMAP, which is making a detailed study of cosmic microwave background temperature differences around the sky. Wright also is an interdisciplinary scientist on the Spitzer Space Telescope, launched in 2003, and the principal investigator on the Wide-field Infrared Survey Explorer (WISE), to be launched in 2008.

Edward L. Wright

The presentation will be rebroadcast on Lab TV Channel 2 Thursday, March 10, at 10 a.m., noon, 2, 4, and 8 p.m. and Friday, March 11, at 4 a.m. For more information see DDLS Website: http://lsto. llnl.gov/ DDLS/ index.html

Links to other websites related to the DDLS presentation: http://www. astro.ucla.edu/ ~wright/intro.html

WEBB

Continued from page 1

mouth-to-mouth resuscitation, while Wilson started CPR compressions.

According to dispatch records, the ambulance arrived within four minutes of the first call, followed by a fire engine. In all, three Lab paramedics were among the immediate responders, providing first aid, including CPR, defibrillation and intravenous drip. Nevertheless, Webb lost consciousness and could not be resuscitated.

Emergency response protocol is to treat a cardiac victim at the scene until his condition stabilizes, rather than attempt an immediate transfer to a medical facility. The nearest emergency receiving facility is Valley Care Medical Center in Pleasanton, which has specialized cardiac evaluation and treatment facilities not available at the Lab's Health Services Department.

According to Buckhout, "The 24 years of training I've received in the Air Force, plus my experience in Baghdad, culminated in an almost automatic reaction in me to assist in whatever way I could."

Wilson, a safety officer in the Security Engineering and Computation Division, credits her quick response to an ongoing program of safety self-assessments within her group. Employees are trained quarterly to respond instinctively to scenarios such as: "What if your co-worker suddenly collapsed in front of you? What would you do?"

According to Wilson, "The training was so fresh in my mind. I was able to stay calm to help as best I could. Unfortunately we could not save him."

Webb was 52. He is survived by Pam, his wife of 26 years, daughter Kathryn, and son John.

His friend and co-worker Craig Baxter described Webb as "a tech's tech." According to Baxter, "Warren would never balk or complain at difficult assignments. He will be missed in this group."

The family has requested that donations be made in his memory to the American Heart Association or the American Diabetes Association.

Warren Webb

A man for all seasons

Ron Hafner of the Energy and Environment Directorate receives the John Campanius Holm Award from Dave Reynolds, the Meteorologist in Charge for the San Francisco Bay Area Forecast Office. Hafner received the award Jan. 20 for participating in the National Weather Services' Cooperative Weather Observation Program for more than 27 years. For more information on Hafner and the award, see the Oct. 22, 2004 edition of *Newsline*.

COURTESY OF NATIONAL WEATHER SERVICES' COOPERATIVE WEATHER OBSERVATION PROGRAM

Engineering animator brings complex science to life

By Don Johnston
NEWSLINE STAFF WRITER

Michael Loomis bridges the technical and artistic worlds in the computer animations he produces for Laboratory programs.

Research groups at the Lab are recognizing the merit of animation for "technical marketing" — visually explaining in an easy-to-understand way the value of their work.

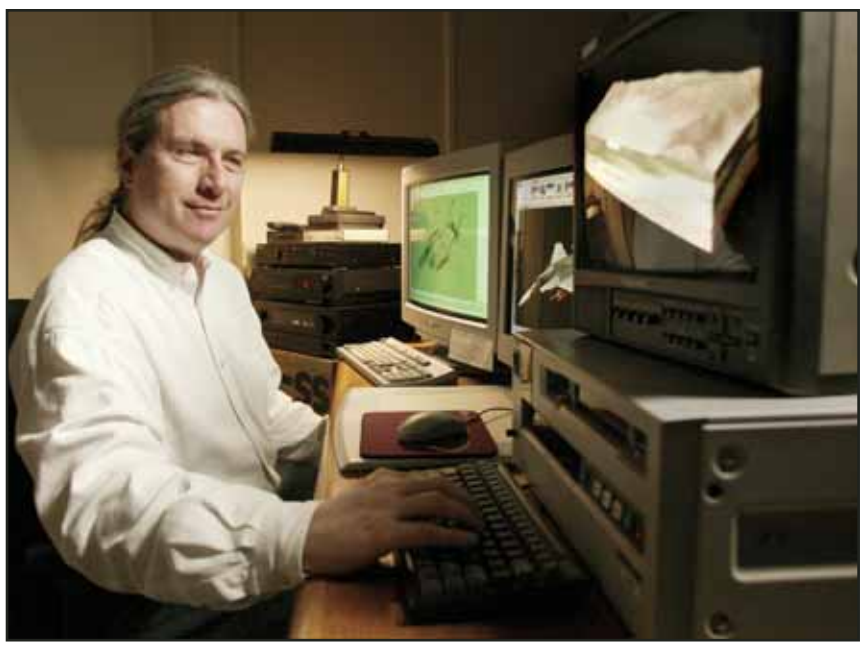
"Animation allows researchers to visually demonstrate complex processes and technical concepts in a way that is easily accessible to non-experts," said Loomis, a computer graphics specialist in the Engineering Visualization Theater and Production Studio. "It's a way to show results to peers as well as to external audiences."

Loomis has produced animations of the National Ignition Facility (NIF), demonstrating how the laser will work; seismic simulations; electrical engineering distributed networks; and the JASPER gas gun at the Nevada Test Site to name a few.

"With animation you can fuse information and ideas in a way that's not possible with other media," he said. "You can create scientific animations using real data."

Rob Sharpe of Engineering's Center for Computational Engineering said animation "conveys ideas in a much more intuitive way than any number of viewgraphs. It's an invaluable tool. People see it and say 'wow' and that's what researchers want to hear."

Mark Martinez, the sponsor for this work at JASPER, said the animation Loomis produced showing how the gas gun works has been "a very effective sales tool" for the program. "It has been very effective in maintaining funding."



JACQUELINE MCBRIDE/NEWSLINE

Michael Loomis of Engineering bridges the technical and artistic realms by creating computer animations for various Lab programs.

The JASPER animation has been used in presentations made to U.S. Sen. John Ensign of Nevada, national laboratory directors, members of the defense board and the Nevada Alliance, a government and industry group interested in the Nevada Test Site.

The animation is now a standard part of the presentations Martinez and others from the program make to stakeholders. "It brings people up to speed on the gas gun very quickly," Martinez said. "People walk away with a better understanding of the science we're able to do."

Before the animation, he said they would get a lot of odd questions about the gas gun and its purpose because as soon as people heard the word "gun" they would think of weapons. "People would ask us if you could shoot it into space or if you could mount one on the back of a battleship. They missed the point."

The JASPER animation, which incorporates photo-realistic images of the instrument, serves as a tutorial in the high pressure physics critical to stockpile stewardship, Martinez said.

"Mike Loomis did a phenomenal job of working with our scientists to produce an animation that is artistic and technically accurate," he said. "Mike bridges that gap really well."

Loomis holds an interdisciplinary master's degree from Chico State in Communication, Art and Computer Graphics. When he first came to the Lab 15 years ago, he wrote code. But soon after, he started assisting mechanical engineers with graphics, computer simulations and animations. "With all the time I've spent working with scientists and technicians to produce graphics illustrating their work, I've gotten really good at straddling the left brain/right brain thing."

For more information about using animation, contact Loomis directly at loomis3@llnl.gov. To see some examples of Loomis' work, check the Engineering Visualization Theater and Production Studio Webpage. http://www-eng-r.llnl.gov/serv_ tools/eng_vis_theater.html

The following link shows a portion of the JASPER animation currently featured on the external Engineering page: http://www-eng.llnl.gov/eng _llnl/02_gifsjpegs/Jasper_1-13.mov

Technical Meeting Calendar

Friday 18

PHYSICS AND ADVANCED TECHNOLOGIES /N DIVISION
"Searches for Dark Matter with the AMS Experiment," by Gianpaolo Carosi, Massachusetts Institute of Technology. 10:30 a.m., Trailer 2128, room 1000. Property protection area. Foreign national temporary building access procedures apply. Contact: Annette Cook, 2-7856.

INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS
"Obscured AGN in Spitzer's First Look Survey," by Mark Lacy, California Institute of Technology. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa Lopez, 3-0250.

Tuesday 22

UNIVERSITY RELATIONS PROGRAM
"The Sudbury Neutrino Observatory Neutral Current Detectors," by Laura Stonehill, University of Washington. 10 a.m., Bldg. 219, room 163. This seminar will be presented as part of the two-day interview process for the Lawrence Fellowship. Property protection area. Foreign national temporary building access procedures apply. Contact: Cheryl Kuks, 3-5643.

RADIATION DETECTION CENTER
"An Update on the Development of MERCURY: A Parallel Monte Carlo Particle Transport Code," by Richard Procassini and the MERCURY Code Team. 11 a.m., Bldg. 155, auditorium. Uncleared area. Contact: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

PHYSICS AND ADVANCED TECHNOLOGIES/N DIVISION
"The NuMI Neutrino Beam," by Robert Zwaska, University of Texas. 1 p.m., Trailer 2128, room 1000. Property protection area. Foreign national temporary building access procedures apply. Contact: Les Rosenberg, 2-4681.

WEDNESDAY 23

PHYSICS AND ADVANCED TECHNOLOGIES/ DYNAMICS OF METALS SEMINAR
"Dynamic Properties of Dislocations in Face-Centered Cubic Metals: Molecular Dynamics Studies and Discrete Dislocation Simulations," by Erik Bitzek, Universitaet Karlsruhe, Germany. 10:30 a.m., Bldg. 219, room 163. Property protection area. Foreign national temporary building access procedures apply. Contact: Laurent Dupuy, 3-6762.

NIF PROGRAMS /SCIENCE AND TECHNOLOGY
"Adaptive Optics for Lasers," by Kai LaFortune. 11 a.m., Bldg. 482 auditorium, room 1103. Contact: Leticia Molina, 2-7715.

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT
"Dell Equipment Demo," by Dell Inc. and GMRI. 2 p.m., Central Café. Refreshments will be served. Contact: Mary Ann Chapeta, 4-4103.

Thursday 24

R DIVISION
"Capabilities & Science of the Forensic Science Center," by Glenn Fox, R Division, Forensic Science Center. 1:30 p.m., Bldg. 132S, room 1000, NAI/DNT auditorium. Unclassified. Contact: Ruth Wright, 3-7328.

RADIATION DETECTION CENTER
"Instrumentation for Homeland Defense," by Clair Sullivan, Los Alamos National Laboratory. 11 a.m., Trailer 1885, room 1012. Property protection area. Foreign national temporary building access procedures apply. Contact: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH (ISCR)
"Active Contours for Tracking in Images," by Anthony Yezzi, Georgia Institute of Technology. 2 p.m., Bldg. 219, room 163. Property protection area. Foreign national temporary building access procedures apply. Contact: Siddharth Manay, 3-7431, or Erica Dannenberg, 3-2167.

Friday 25

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"Flash-Bang," by Dave Dearborn, LLNL/PAT/V Division. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary building access procedures apply. Contact: Wil van Breugel, 2-7195, and Lisa Lopez, 3-0250.

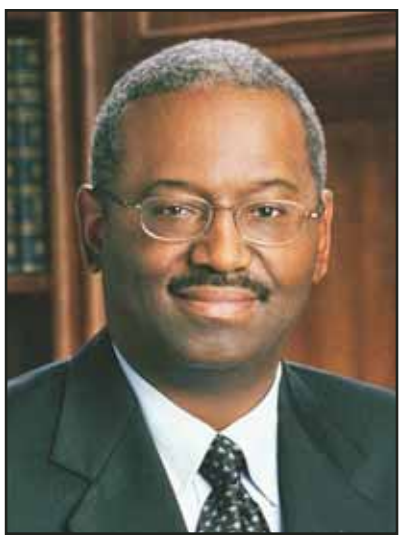
The deadline for the next Technical Meeting Calendar is noon, Wednesday.
Please submit your meetings via the new Technical Meeting Calendar form on the Web, located at http://www-r.llnl.gov/tmc/index.html

Scholar to discuss significance of Black History Month

George Wright, president of Prairie View A&M University and noted African-American scholar, will present "The Significance of Black History Month" at noon Wednesday, Feb. 23, in the Bldg. 543 auditorium.

Wright has authored numerous books, articles and essays about African-American history and has co-directed two documentaries for television. He has been the recipient of numerous fellowships, grants and awards including the Andrew W. Mellon Faculty Fellowship at Harvard.

He was named president of Prairie View A&M University in 2003. Wright spent the majority of his career in the University of Texas system. At the University of Texas at Arlington he was senior vice president for academic affairs and provost, and at the University of Texas at Austin he was vice provost for undergraduate education. His other professional positions include vice provost for university programs and director of the Afro-American studies program at Duke University.



George Wright

The talk is sponsored by ABLE (Association of Black Laboratory Employees) and the Worklife Programs Office and is one of the programs commemorating Black History Month.

All Lab employees are invited to attend. For more information, contact Susane Head in the Lab's Worklife Programs Office, 3-6688.

African History Bowl

The African History Bowll will take place at noon on Thursday, Feb. 24, in the Bldg. 543 auditorium. Teams of four employees representing several directorates and organizations, including AHRD, Engineering, Energy and Environment, Lab Services, NAI, Security and the Director's Office, will compete in preliminary rounds on Feb. 22 to answer questions on African and African-American history. Teams have been provided with a study guide. The final three teams will compete on Feb. 24.

Science on Saturday examines genomes

The clues are all there in the DNA 'sequence.' But how do we read them? What do they tell us? Discover the answers to these and other challenging questions when Biosciences Associate Director Elbert Branscomb and Granada High School science teacher Frankie Tate present "Decode this: Decoding Genomes," the third "Science on Saturday" lecture on Saturday (Feb. 19) at 9:30 a.m. at the Amador Theater, 1155 Santa Rita Road, Pleasanton.

During this lecture, audience members will learn what a genome sequence is, how genomes can be deciphered, and what mysteries we are solving.

The series of free lectures and demonstrations are geared for students in middle through high school and will run through March 5. Each presentation in the series is a collaboration between a Lab scientist and a science teacher and is aligned with the California Science Standards.

There is no pre-registration, and seating is on a first come, first-served basis. Seating quickly filled at last week's presentation so attendees are advised to come early.

Directions, maps, and a complete list of lectures are available at http://education.llnl.gov/sos/. "Science on Saturday," is presented by LLNL's Science and Technology Education Program, and Sigma Xi, Livermore Chapter. For additional information contact Richard Farnsworth at 2-5059.

Remaining lectures in 2005 lecture series

• Feb. 26: "Plasma Spectroscopy — Fingerprinting the Universe," presented by Don Correll, LLNL physicist and Dan Burns, Los Gatos High School teacher.

Learn about spectroscopic measurement of light, the latest research findings of fusion energy experiments and how to construct your own spectroscope.

• March 5: "From the Big Bang to California: Observations of the Universe," presented by Wil van Breugel, LLNL astrophysicist and Tom Schfler, Granada High School teacher.

Learn about some of the most recent discoveries in astronomy. Find out what is done at LLNL to help understand how super-massive black holes play as important role in the formation of galaxies.

Join your co-workers in fighting cancer

Purchase a bunch of freshly cut daffodils (10 stems) for $10. A vase is available for an additional $8.

The deadline for an LLNL order is Tuesday, March 1. Delivery will be on Tuesday, March 22.

Money from this American Cancer Society-sponsored event will go to research, education and patient services.

Check the list below for the LLNL Daffodil Days volunteer nearest you who is accepting orders.

Name	Bldg.	Rm.	L-code	Phone
Barnes, Tracey	111	501R	L-001	3-9060
Bell, Christine	543	2075	L-640	3-9447
Berkich, Tracy	071	1020	L-102	4-4101
Bireley, Kathy	543	Lobby	L-638	2-8431
Bradbury, Diana	132N	2817	L-090	2-1746
Breznik, Joanne	551W	2387	L-662	4-4101
Conrad, Janet	453	2155	L-073	2-7561
Continente, Jenifer	113	5008	L-066	2-6644
Delage, Lori	511	100E	L-601	4-2601
De Marco, Barbara	142	1310	L-210	4-2272
Emmrich, Shirley	551E	1090A	L-654	2-6206
Fread, Lanette	411	1422	L-518	2-9288
Giannini, Julie	253	1505A	L-382	2-5129
Grandfield, Charlene	5475	1359	L-633	3-1779
Greenfield, Jodi	170	1079	L-103	4-6460
Harrison, Jaquie	481	2055	L-488	2-2823
Horner, Nadine	Co-Chairman, Daffodil Days			3-9051
Jackson, Sandy	361	1579	L-441	2-9308
Lindsay, Karen	321A	2100	L-337	3-5028
Mahler, Florann	111	403	L-019	2-9173
Miller, Margie	314	1216	L-432	3-0265
Moy, Jenny	663	1201	L-723	2-0778
Navarra, Monica	1401	1011	L-200	2-0207

Name	Bldg.	Rm.	L-code	Phone
Nelson-Lee, Jennifer	5426	1009	L-621	2-5750
Olund, Cindy	131	2075	L153	2-3668
Owens, Cinda	191	2235	L-282	2-3392
Pope, Kathy	551W	2203	L-660	3-1015
Quick, Bonnie	451	1041	L-561	2-6510
Ray, Karyn	6526	1010	L-797	3-3106
Raziano, Donna	1878	110	L-278	2-8517
Rutan, Dena	253	1536	L-384	3-0696
Sarlund, Nancy	140	2002	L-389	2-5072
Schuld, Joni	Accounting Representative			2-4168
Sefcik, Cookie	121	1013	L-051	3-2242
Shuler, Jean	113	1030	L-067	3-1909
Sorensen, Nanette	2925	101	L-397	2-9670
Springer, Frankie	111	332	L-016	3-6192
Sprott, Kirsten	Co-Chairman, Daffodil Days			4-4822
Thompson, Michelle	871	124	L-871	3-1180
Thompson, Starlyne	671	1314	L-650	2-7414
Twiss, Carol	571	1138	L-725	2-9395
Watt, Maggie	335	1130	L-361	4-6247
Weyburn, Sandy	551E	221E	L-657	2-0840
Williams, Anita	132N	2254	L-170	2-4550
Yazzie, Darlene	132S	2322	L-182	3-7846
Ybarra, Corinne	482	2158	L466	3-9501

Classified ads

See complete classified ad listings at https://www-ais.llnl.gov/newsline/ads/

Automobiles

1971 - Mercury Merquis 1971 Black with tan leather interior under 70K original miles.Looks good in and out $4500 OBO.Call for more info, 510 459 8018.

1999 - Mercedes E-320 V-6 White with Tan leather interior, Excellent cond. Loaded, 17,995. 209-603-9295

2002 - VW Passat Wagon 1.8 turbo, 5sp manual. Gray-blue with gray leather. 23Kmi, 1 year left on factory warranty. $15,000. 925-449-8783

1978 - Vw Convertible Super Beetle. Red With White Top. Spotless... Garage Kept With Cover Must See $6000.00 925-454-5321

2001 - Lexus RX300-Fully loaded,Excellent condition, leather,CD changer,sunroof,57k miles KBB 23K, asking 21K. 925-361-5296

2000 - TOYOTA CAMRY LE - Excellent condition! Silver. AT, A/C, PS, PW, PD, Cruise, CD, Keyless Entry. 109K Miles (Mostly Freeway). MUST SEE. $7500 408-386-5662

1997 - Saturn SL2, Auto, sun roof, spoiler, AC, am/fm cassette, leather. Great commuter or Student car. Good condition 60K miles. $4,500 OBO 925-606-1972

1966 - Mustang, 302, AT, Champagne, photos on request. $10k OBO 209-836-5784

1987 - Nissan Sentra coupe, automatic, A/C, alloy wheels, sun roof. 181,800 mi. on engine, 11,700 mi. on new radiator and rebuilt transmission. $1,395, obo. 209-823-4795

1972 - VW Custom BUG Lowered, wild paint job, dual carbs, custom exhaust, lots of extra parts. $1500 925-373-1057

1993 - Mercedes 300E Sedan 3.2l motor, Silver/Black leather. Power everything. Excellent condition w/ 132K Miles. No accidents. $7500 510-581-4117

Automobile Accessories

Stock aluminum wheels & tires from 1982 Corvette $800 925-806-0877

Limited addition 1/24 scale die cast stock car, Elliott Sadler 38, M&M 2004 Taurus, Yates Race Team. Retails $75. Brand new in unopened box. $30. 925-648-0671

Honda Civic rims/tires,low profile 205/50R/16,ONLY 1,000 miles w/ warranty$500.00 O/B 209-679-2798

Camper shell for short bed truck, as is $10.00 925-447-0428

NEW PICKUP PARTS - Chrome step bars, Dodge Ram, $150/offer. Stock tires/alloys, 6-lug Chevy, $250/offer. Euro taillights $40. 925-443-2173

NEW CHEVY PARTS - New Tonneau cover, black, 99-02 shortbed, $500/offer. New bedliners, under rail, can get any make/model, $100 each. 925-443-2173

Bicycles

Mongoose XR200 21 speed mountain bike with front disk brake and front and rear shocks, $200. 925-377-6537

Trek, 2001, Mountain Lion 30. Ages 6-9. 20 in. aluminum frame. Metallic purple, hand & pedal rear break. Excellent condition. Paid $159. Asking $90. 925-455-6162

Ritchey road bike, 58 cm, Shimano Ultegra group, Alpha Q carbon fork, Look pedals. $650. Bob 925-838-9302

Boats

Fishing boat,69 chrystler lone star w/trailer,80hp evinrude,15hp trolling.$1500.00 O/B 209-679-2798

Hobie 14 Catamaran. GOOD condition on a GOOD trailer for a GOOD price. New tarp and halyards. $400 OBO 510-582-2612

Cameras

Sigma 28-200 zoom lens (up to 4x), Nikon mount, $150. 925-377-6537

Pentax 6x7 with 55mm, 75mm, 165mm, metering prism, standard prism, bellows lens shade, Halliburton case - $1400 925-449-0107

Electronic Equipment

Magnavox MANT902 Large-Directional outdoor (rooftop) VHF/UHF/FM TV antenna. Brand new, still in the box. $50. 925-455-1766 925-455-1766

Sony KV-40XBR700 WEGA TV. Included 2 component Video Inputs. HD Capable (1080i, 480p, 480i) $1000. 209-521-5537

HP Color printer. Used twice. Have too many printers. 35.00. Sony monitor with keyboard and speakers 20.00. 510-537-7222

Pioneer CD changes, 6 disc, $50. 925-443-2173

Giveaway

King bed (complete with headboard, springs, bed, matress); two student desks; all in good condition; in Pleasanton, you pick-up 925-426-0983

Sony Vaio P233 MMX, 160M RAM, Video/TV card combo. Free to good home. No drives, but will include floppy drive if you like. 209-327-0012

Lrg Metal desk- approx 4FTx3FT desk top space. Lots of drawer space. You pick up. 209-836-2004

Office Desk, wood, dark finish 60x29, Good Condition, 925-443-7531

Household

Chest style freezer. In great condition. Beige in color. Can arrange delivery if needed. $75 obo. 209-836-3436

Solid Oak Cheval Mirror in natural finish. Elegant and in great condition. $60.00 925-447-9647

Pfaff 7570 sewing and embroidery machine. Includes software, four hoops, quilting foot, manuals, extension table, and more. $1,150. 209-832-3880

Hoover Dirt Finder with allergen filtration with attachment. 20.00 Runs well. 510-537-7222

Humidifier, 9 gallon cool mist. Holmes brand on caster wheels for easy mobility. Paid $80 plus tax. New in unopened box. $50. 925-648-0671

Dining Room Table, 75 x 43, 6 chairs, custom pad, excellent conditon. $300. 925-846-8136

Step stool, metal, 1960s vintage $13.00 925-447-0428

Strata Princess queen size adjustable airbed. Mattress and boxspring with remote controls and bed frame. Excellent condition. Asking $200. 209-824-3150

Hi-Efficiency washer and gas dryer, 2 years old, Whirlpool Calypso brand. Dryer perfect, washer needs minor repair. $300/pair 925-449-5543

REFRIGERATOR Freezer on top. Works great. $150. BATHROOM VANITY lovely oak cabinet w/ drawers. Sink incl. Very good cond. $200. 209-833-1201

Sofa $125, rolltop desk $100, maple end tables,patio swing $30, bookcase $75, washer dryer set $150, pre-garage sale stuff 925-373-1512

Whirlpool washer/dryer in excelent condition. Moving sale. Heavy duty and large capacities. Sale for $200. 925-606-5954

MOVING TO OUR BOAT SALE. Everything must go: appliances, furniture, kitchenware, more. Feb 19-20, 8:00-2:00. 1518 Hollyhock, Springtown, Livermore. 925-337-4351

Solid Dark Oak Dining Room table and six chairs (blue/gray/beige material, seat and back). Extends to 7 Ft. Asking $450, but will accept best offer. 925-625-8667

Two Lay-Z-Boy rocker/recliners. Small, great shape, dusty rose upholstery. $100 each or both for $175. 925-634-1606

Oak desk(60x24)-left return(48x21)corner unit/bookshelf hutch. Overall 72x60. 2 file drawers + others. Bookshlef sets ond esk.$300.00 or BO. 925-447-5045

Lost & Found

Lost mens black leather jacket about 1 yr ago (yes, 1 year); brand Marc of NY 925-373-6751

Miscellaneous

Antique tiger oak bedroom set (very early 1900s). Bed, commode, dresser. Professionally stripped ready to finish. $2,500 OBO. 925-245-1114

Kennedy top and bottom machinist tool box, incl. misc. indicators, gages, tooling items. $2000.00 209-835-2416

Emerson 7gal/day humidifier,var spd,flr model w/4 new filters:$50; Royobi BS900 9in band saw w/3 blades, w/cast iron floor stand $75. 209-239-8984

Portable heater, Black & Decker w/adjustable thermostat, 2 heat settings with fan, 25 x 17 high. New in box. Paid $40 plus tax. $25. 925-648-0671

Gun safe, wall-stud mount. Needs new locking mechanism. 16W x 60H x 9D. 925-634-1853

Wood chopper, shreds and chips, 5hp, hardly used $250.00 925-447-0428

Solid Oak dining table 41 inches round with 18 inch leef. Four chairs medium to dark oak. Table and chairs are very solid. $350.00 925-699-7619

Motorcycles

2000 - Yamaha TTR 90, excellent condition. Only used about 20 times. Perfect for beginers. Green sticker registration through 2006. $1000. 925-373-6870

2000 - Suzuki GSXR 750. In excellent condition only 6,907 miles on it. $6,000 or obo. 925-487-0714

2000 - Honda Shadow Sabre cruiser. Red tank and fenders, like new condition, lots of extras. Was $9500 new, asking $7500 obo. 3000 miles. Never downed. 209-551-8058

1991 - Honda 750 Nighthawk, excellent condition, 27,000mi, Backrest, throttle lock, soft saddle bags, tank bag, cover. $1,900 925-443-9454

Music Instruments

PIANO w/ matching bench, Kohler & Campbell 40 inch upright. Medium dark satin wood finish. Good tone, very good condition. $900 925-443-4672

Ukelele, Soprano with soft case. Made by Applause, round back design. Great condition. $100. 925-634-2701

Antique upright piano c.1890,rounded corners,scrool carvings nice looking, plays well ,$350 510-537-9432

Pets & Supplies

Kitty season is on its way. This means many cute kitties will have to be euthanized for lack of space. You can help by becoming a temporary foster. 209-833-0607

Black lab/rottweiler male puppy 9 months old. Sweet and loving personality, obedient. House trained. Please leave message. 925-625-0520

Baby fancy mice, free to good homes (not feeders). Available 2/22. Girls and boys, all colors. 925-606-0238

Brand new, barely used, large breed dog crate - air freight approved, $80/OBO (cost $120 at purchase) 925-449-3821

Boxer, female 2 years old AKC registered $500.00 Raised around children, very loveable and friendly. 925-516-6675

Pure bread 2 year old Boxer-AKC Reg. Not Fixed female, loves being around kids, tiger spriped & White, beautiful dog. Must sell $400.00, obo. 925-250-7918

Two Oscars approximately 5in. and 6in. They will do best in a 50 gal. tank or larger. $10.00 for both 209-239-9975

Expandable Habitats bird cage 2ft x 3ft x 6ft many extras good for large Amazon parrot Cockatoo Macaw $900 new $200 offer 925-454-1969

Recreation Equipment

K2 Merlin VI skis w/Marker Bindings, 178cm, used 2 days, excellent condition, $390/B.O. 925-443-3106

Schwinn 340i stair exercise machine. Excellent cond., digital readouts, programable. 4 y.o. Was $1600 new, asking $450. 209-551-8058

Lead sinkers. 2.5 inch and up. 40+ lbs. Best offer using tax-deductable donation to organization of your choice. 925-484-1319

Eclipse 4100 Elliptical trainer - $300. Only used a few times. Retails for $600. 925-456-5681

Golf clubs: 1,3,5 Mitsushiba titanium woods. Reg graphite shafts. New cond. $65.00. Bob 925-838-9302

Ridesharing

Express your commute, call 2-RIDE for more information or visit http://www-r.llnl.gov/ tsmp.

Modesto - Vanpool has opening just for you. We leave at 6:35am from Home Depot. I live near Vintage Faire Mall. Leaves Lab at 4:45pm . 209-576-0217, ext. 2-7459

Clayton/Concord - For riders on a 7:30-4:15 schedule. We meet in Clayton and Concord. One vacancy available, please contact us immediately. 925-209-8880, ext. 3-4351

Walnut Creek/Pleasant Hill - For riders on an 8:00-4:45 schedule. We meet at Pleasant Hill BART (7:08) and Rudgear Road Park N Ride (7:19). Luxury van w/individual seats, lamps. 925-930-0415, ext. 2-6593

Lafayette - LaMOrinda Vanpool (also WALNUT CREEK stop at Rudgear Rd): reclining seats, reading lights, 7:45-4:45, $105/mo (pretax reduction available) 925-943-6701, ext. 3-3005

Modesto - Space available in 14 pass. van, 8AM - 4:30 PM work schedule. $124/mo. 209-521-9047, ext. 2-5177

Discovery Bay - 3 person carpool looking for rider/driver. Arrive 7:30-7:45 leave 4:30-4:45. 925-516-1243, ext. 2-7279

Valley Springs - Seat available in car pool. Take turns driving. Leaves Valley Springs at 4:55. Work hours AWS 7:00-4:30 209-772-0151, ext. 3-7709

Martinez - Car pool looking for a 4th member. Leaving Martinez/PH area between 6:30-7:45. Leaving lab after 4:30 925-200-1370, ext. 3-7857

Services

ClutterLess(CL) Self Help Group. Mondays 7 -8:30 PM. NO MTG 2/21/05 Just come: Pleasanton Presbyterian Church, Rm 7, 4300 Mirador Drive, or call 925-443-0766

Get low off-season painting rates now before the weather gets hot. Interior and exterior. 25 plus years in business. Excellent references. 510-537-7222

House cleaning, exceptional quality and references. Call for quote. 209-833-6467

CONCRETE-foundations, custom, stamped, colored, sealing & more. Over 20 years experience. Free estimates. 408-806-9816

Shared Housing

Livermore - Unfurnished room 4 rent, kitchen/laundry priviliges. No pets/no smoking. $550/month, Deposit. Share utilities. 925-373-1648

livermore - Unfurnished master bedroom and bath in newer Apt. complex.Inside laundry,full privilages, pool,spa available march 1st. 925-454-9649

Livermore - furnished room for rent. Clean/quiet/pool. Close to bus/bike path. No pets/no smoking. $550.00/month. Share utilities. Deposit. Mature adult. 925-449-1128

Livermore - Spacious room and bath in quiet new home with full laundry and kitchen priviledges. NS/NP $650 includes all utilities. 925-784-0011

Trucks & Trailers

2003 - Frontier 24 Ft Travel Trailer With Rear And Side Slides, Many Options Call For Details, Like New $15,200 925-755-3627

2004 - Tahoe Toy Hauler by Thor. 24ft trailer, sleeps 8, excellent condition, 4.5 kw generator and lots of extras. $28,000 209-835-0833

1999 - Ford Ranger XLT extra cab w/camper shell. V6, AT, AC, rear ABS, keyless remote, am/fm cassette, power everything. Great condition, 88k miles. $6950. 925-846-3653

1996 - Ranger LXT runs good. Clean. Extra cab, long bed with bedliner, cassette 6,000.00 obo 510-537-7222

1991 - Chevy 3/4T,Ext.Cab,4x4,LWB,Camper Shell/Kit, 350,Auto,PS,PW,PL,Cruise,Air,4 Core Radiator,Clean&Maintained $6000/OBO 209-874-3440

1955 - UNIMOG convertable, needs work,rare short wheel base model,complete, 2.2L, 6-speed,portal axles,ran last year. $2600 209-234-3854

2002 - Ford F150, V6, Reg cab, Long bed,diamond plate running boards and bed top trim, bed liner, 4,400 mi, original owner, $14,800 OBO 925-455-4580

1989 - Ford F250 XLT Lariat 4X4 Long Bed, 460 V8, Auto Transmission, 127K miles, Asking $2,500. 925-462-9455

Vacation Rentals

Above Arnold - great 4 bdrm 2 bath cabin. 20 miles below Bear Valley highway 4. Weeknights $75 through March. 925-245-1114

Soooo cute beach cottage in Santa Cruz near harbor. 2 bedr, 2bath, spa, 2short blocks to beach. Sun-Thur special thru March$75.00/nite 925-245-1114

Lake Tahoe - condo for rent, Incline Village, 2brdm, sleeps 6, avail April 3-10, $150/nt, 2 night min. stay, or $800/wk. Very Nice. 925-443-5714

vacation rentals - Tahoe Keys, house, 3 bdrm, 2.5 bath, fenced yard, great views of water and mountains, $195 per night 925-376-2211

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, comfortably furnished, all amenities,close to all skiing,FEB.25-27 Open! Reserve Now For Skiing/Winter Fun!! 209-599-4644

Wanted

7 or Newer Chevrolet 3/4 - 1 Ton, Long bed, pickup truck, good to excellent condition, $3,000 or less. 925-443-7215

Looking for a wooden square playpen for puppies. 925-413-1919

Do you have low back or whiplash pain? I need to practice my new skills. Your cost, only $45 hour, not $65. 510-791-8623

My children's after-school program is in need of a couch for their classroom; if anybody has a couch in good condition to donate call 209-521-4846

Want to buy computer armoire 925-373-1512

Wanted: Livermore family to host high-school boy from Japan wanting to attend HS in 05/06 school year. Some monthly expenses provided. 925-447-3636

WANTED: General Mills Box Tops for Education. Collecting for school library. 209-576-7560

Due to space limitations, *Newsline* may withhold ads that have already run. They will still appear on the Web.

BRIEFLY

Engineers Day next week

The Laboratory will celebrate "Engineers Day" on Friday, Feb. 25, from 9 a.m. to 2 p.m. with special activities for local sixth and seventh grade students, in the Bldg. 123 auditorium and the area across from the West Cafeteria.

Jeff Wisoff, NASA astronaut and LLNL engineer, will present the keynote address, "Destination Space Station." Students will have the opportunity to participate in hands-on demos such as fuel cells, sunspots, and "what's in a computer."

Students will meet and talk with Lab engineers, view a graphics presentation by Lab animator Michael Loomis, and participate in two class contests. More than 500 students are expected to attend this year's event. For more information, contact Arden Anderson, 2-9512 or go to Web at http://www-eng.llnl.gov/Engineers_Day/

New "Job Security" rubric coming

The Security Department alerts Lab employees to be on the lookout for "Job Security," coming later this month to an e-mail box near you. Part of Integrated Safeguards and Security Management (ISSM), this new communication offers:

• Lessons learned from on-the-job experience.

• Feedback for continuous security improvements.

• Help avoiding security infractions on the job.

Everyone else is looking for "Job Security." You should too.

LDRD Strategic Initiative proposals due

March 4 is the first deadline for submitting FY06 proposals in the Strategic Initiative (SI) category of the Laboratory Directed Research and Development (LDRD) Program. Preproposals for new SI projects and full proposals for continuing SI projects are due to Nancy Campos, campos1@ llnl.gov or 2-9805, in the LDRD Program office by close of business. For further information about SI proposals, contact Nancy or go to the LDRD Web page at https://lsto.llnl.gov/Proposals/Proposal Home.pl The SI competition is open to all LLNL scientists, engineers and technical staff.

Improvements coming to the Central Café

Outdoor seating at the Central Café may be limited between now and Feb. 25 as construction crews set the posts for umbrellas that will eventually shade the dining areas.

Schwartz talk available

The Feb. 8 Leadership Lecture featuring Peter Schwartz was very well received. If you were unable to attend and are interested in viewing a replay of the lecture, see the link below to register and download the course materials at http://www-r.llnl.gov/human_ resourc es/sedd/eodd/event_lecture_schwartz.html

Options include, Web streaming, (server will be down Friday afternoon through the weekend), VHS tapes or DVDs, which are available for checkout. For questions about the event, call Susan Flowers, 2-5951, Ginny Von der Schmidt, 2-3131, or Angelica Garcia, 3-6663.

Symposium on Systems, Safety, Security and Reliability

The Laboratory's Energy and Environment Directorate and Osaka University will be co-sponsoring the 2nd International Symposium on Systems, Safety, Security and Reliability on March 9-11 at the Westin San Francisco Airport Hotel.

The symposium is aimed at facilitating the development of new ideas and approaches to complex systems in the 21st century, supporting the creation and evaluation of engineered complex systems, integrating disciplines to provide solutions and building reliable capabilities for large-scale disasters. It serves as forum for researchers and engineers to discuss the latest theories, systems and applications.

Papers will be accepted through Feb. 28.

This symposium will build on the success of the first such symposium, SSR2003, hosted by Osaka University in Osaka, Japan.

The Westin Airport Hotel is at 1 Old Bayshore Highway in Millbrae. For more information or to register, go to the Website, http://ssr.llnl.gov or contact Sandra Maldonado, 3-0621.

SPHEROMAK

Continued from page 1

fusion energy, experimentalists try to understand precisely what is going on inside the fusion plasma so they can tune the system to improve the conditions that would lead to a sustained reaction within the heated plasma. If the temperature can be kept high enough and the energy contained, net power can be produced.

Experimentally, determining exactly what is happening inside fusion plasma is very difficult. A conventional probe inserted into the hot plasma is likely to sputter and contaminate the plasma, leading to a loss of heat. Experimentalists must use nonperturbative diagnostics, e.g., laser scattering, and measurements with probes and magnetic loops around the edge of the plasma to deduce the plasma conditions and the magnetic field structures in the interior of the plasma.

An important aid to the experiments is work undertaken with computational scientists to create detailed simulations of fusion plasmas. The resulting simulations produced using the NIMROD code on NERSC's Seaborg supercomputer are very close to the observed results from actual runs on SSPX, giving the researchers confidence in the accuracy of the simulations and increased understanding of the physics in the spheromak.

"These simulations are very important for supporting our experiments," said Bruce Cohen of the Laboratory's Fusion Energy Program. "The experimental team has been upgrading the capacitor bank used to drive the reactor, and our simulations confirm how careful tuning of the current pulses can improve plasma performance, such as achieving higher temperatures."

Cohen recently presented some of the group's latest results in an invited talk at the 2004 annual meeting of the American Physical Society's Division of Plasma Physics. In a close collaboration led by Carl Sovinec of the University of Wisconsin-Madison, the Wisconsin-LLNL group recently had a paper accepted for publication by *Physical Review Letters.*

While the principal magnetic fusion approach focuses on the tokamak, fusion energy scientists are also revisiting the spheromak and other alternative concepts for attaining magnetic fusion. The SSPX spheromak is a series of experiments designed to determine the spheromak's potential to efficiently create and confine hot fusion plasmas. The systems differ in that the tokamak's magnetic fields are generated by large, external magnetic coils surrounding the doughnut-shaped plasma (which make the tokamak more complex and expensive), while spheromaks confine hot plasma in a simple and compact magnetic field system that uses only a small set of external magnet coils. The necessary strong magnetic fields are generated inside the spheromak plasma by plasma currents and what's known as a magnetic dynamo.

A spheromak can be formed and sustained by injecting magnetic helicity and energy from a magnetized coaxial plasma gun (powered by a capacitor bank) into a conducting shell or flux conserver. Although the physical spheromak design is simple, its dynamo activity produces plasma behavior that is extremely complex and more difficult to predict and control than that found in tokamaks.

"How high a temperature you can achieve and how well you can hold that heat in the plasma are two of the key points on the short list of things you want to understand and optimize in a fusion device," Cohen said. "Minimizing the energy leakage rate relaxes the requirements on how much energy you need to put into the fusion plasma to drive it and makes it easier to achieve sustained thermonuclear reactions."

With recent changes to their code, the LLNL collaboration has created simulations with temperature histories — measured in milliseconds — that are closer to the temperature histories observed in experiments. This follows the group's prior success in simulating the magnetics of the experiment. "We have the magnetic history captured pretty well," Cohen said. "Energy confinement is closely coupled to the detailed magnetics."

Plasma and energy confinement in the spheromak is quite sensitive to the quality and symmetry of the magnetic field lines. As long as the plasma and its confining magnetic field remain relatively axisymmetric with a large volume of closed, nested magnetic flux surfaces, hot fusion plasma can be confined away from the walls of the device, and a high temperature can be maintained. However, due to magnetohydrodynamic (MHD) instability, small fluctuations and islands develop in the magnetic fields. This disrupts the axisymmetry, undercutting the confinement of the plasma and allowing heat loss. Finding ways to eliminate the magnetic fluctuations and the associated islands would allow the scientists to improve the energy and plasma confinement, and thereby increase the operating temperature.

"The simulations support experimental findings that controlling magnetic fluctuations is central to improving the quality of the magnetic flux surfaces and the energy confinement," Cohen noted in his talk at the APS meeting.

Future work also will address controlling magnetic fluctuations with a conducting insert along the geometric axis and additional physics improvements to the simulation model.

"We really need supercomputer resources to do these kinds of simulations, which involve massive calculations," Cohen said.

Although the simulations cover only four milliseconds in physical time, there are 105 time steps involved in the simulations.

A visit to Health Services helps ensure safe travel

By Sharon Emery
TID

If you're fortunate enough to travel to a foreign country for Lab business or even personal pleasure, you may become overwhelmed by all the things you have to accomplish before you even step on the plane.

One very important action item to add to your to-do list is "Visit Health Services." By taking a few precautionary steps before you leave, you'll help ensure a safe and healthy journey.

Last August, two Laboratory employees came to fully appreciate the importance of visiting Health Services before a business trip. While working with a "sister" nuclear research center in the developing country of Morocco, Bob Fischer and Paula Tate of the Environmental Protection Department found themselves faced with a potentially life-threatening situation. As they were traveling by car to their hotel, their driver swerved to avoid a dog in the road.

Their vehicle, a 2004 Land Rover, rolled over three times. Paula, who was in the front passenger seat, was most severely injured. She suffered a concussion, strains, lacerations, bruises, abrasions and whiplash. Bob, who was riding with another passenger in the back seat, was not as seriously hurt.

Paula and Bob, who were "out in the middle of nowhere," waited 20 minutes for transportation to the nearest hospital, which turned out to be very poorly equipped and inadequate. The nurse couldn't even take their blood pressure because there was no gauge available. Paula reflected: "There was no air conditioning, no computers in sight, no lights in the restroom, no security, and it was not sanitary."

Fortunately, Bob used Paula's cell phone to call a Laboratory emergency-duty officer (LEDO), an on-call physician and Worldwide Assistance Service — the Laboratory's contracted medical services for foreign travelers — to plan and discuss how to get additional medical help for Paula. The following day they flew to Paris and were seen by doctors there. Paula was treated and cleared to travel home. They flew back to the Bay Area the next day.

If you are planning foreign travel, plan to visit Health Services at least six weeks before your trip begins. Your general health will be evaluated, and your itinerary and planned activities will be discussed. Based on the country you'll be visiting, a Travax report will be generated, listing immunization requirements, health precautions and requirements, disease risks and travel advisories. Health Services will provide you with the necessary immunizations, too, if you're traveling on Lab business. Some vaccines require several weeks for immunity to develop, while others may require more than one dose of the vaccine for full protection.

Health Services can prepare (with an account number) a "medicine kit" customized to meet your essential needs. Paula pointed out that, in Morocco, they were able to use some of those kit medicines and even shared aspirin with the other passengers involved in the accident.

Lab travelers should become familiar with Worldwide Assistance Service, which will help facilitate medical assistance and offer advice for countries with substandard medical facilities. Bob and Paula recommended asking for a translator or doctor right away.

Laboratory policy states if you're involved in an accident or are hospitalized while you're on official travel, you must report it promptly to Health Services and the Laboratory's risk manager.

Before going abroad, it would be wise to consult with your health insurance provider to discuss policies and procedures. You should definitely carry your insurance identification card along with any other emergency numbers you'll need.

Bob and Paula strongly suggested Lab employees have international cell phones with them during their travels abroad, for emergency purposes. You can borrow (with an account number) a UTel cell phone to be sure it works properly.

Keith Sheirich, an occupational health nurse practitioner in Health Services, says travelers can take proactive steps to avoid or at least minimize health problems by using the Laboratory's foreign travel clinic.

Contact Health Services at 2-7459 for more information and check out the foreign travel Website http://www-r.llnl.gov/es_and_h/foreign_travel.

SANTER

Continued from page 1

mined that human-induced changes in ozone and well-mixed greenhouse gases are the primary drivers of recent changes in the height of the tropopause — the boundary between the turbulently mixed troposphere and the more stable stratosphere. Research with new models and observational datasets strengthens these findings.

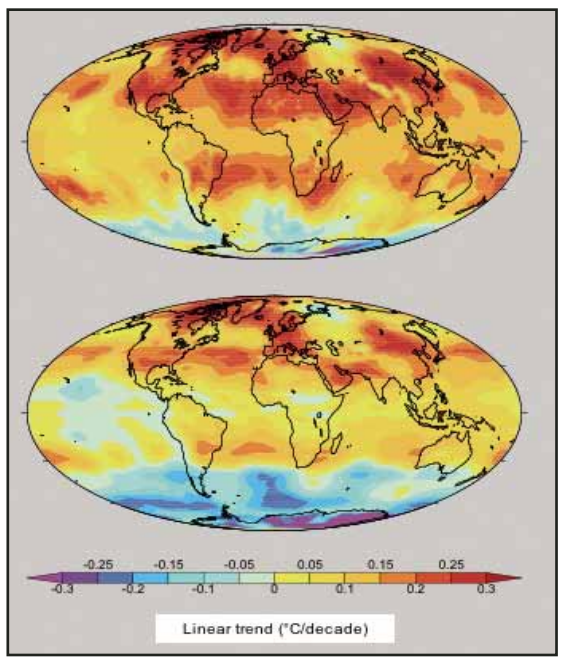
"With new model experiments coming online, we're now in a much better position to estimate how climate changed in response to combined human and natural influences," Santer said.

PCMDI is archiving data from recently completed experiments performed with coupled ocean-atmosphere general circulation models that took place at more than a dozen research institutes worldwide. "This data will be a very valuable resource for the Laboratory and the whole community," Santer said. "We are sitting on a real scientific goldmine."

Other Livermore researchers also will present at the AAAS meeting this week. Ken Caldeira of the Energy and Environment Directorate will be speaking about carbon sequestration in a session titled "Energy for a Future without Carbon Emission" on Saturday afternoon.

Steve Velsko of the Nonproliferation, Arms Control and International Security Directorate will speak Saturday about physical and analytical chemical analysis in bioforensics in a session titled "Stopping the Bio Bad Guys: Biological Forensics and Detection."

Ed Moses will discuss the National Ignition Facility during a Friday session titled "Fusion: Energy Source for the Future?"



The two satellite data sets yield different patterns of tropospheric temperature change over 1979 to 2003.

Keep California beautiful

BOB HIRSCHFELD/NEWSLINE

University Relations employee Paul Dickinson, president of Keep California Beautiful, recently received a special award honoring the Laboratory's support in the campaign. Dicksinson has been a board member for 10 years and president for three years. The campaign promotes litter abatement through volunteer projects and education.

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